REMARKS

There is one rejection remaining in this application. Claims 1, 3-6 and 25 have been rejected under 35 USC 103 as allegedly unpatentable over Huang in view of Hoofnagle and Moody et al. Applicant respectfully traverses this rejection.

I. The Declaration signed December 19, 2005 by Dr. Kenneth Sherman and filed with the Patent Office on January 2, 2006 established efficacy of the claimed method and pharmaceutical composition. The Applicants showed to the PTO that improved results were achieved with a combination therapy over using either α-interferon alone or thymosin-α alone. These results were unexpected by the Applicant because no one prior to this invention had even suggested using thymosin-α for the treatment of Hepatitis C let alone a combination therapy. Hence, the first part of the Examiner's final rejection that no improved results have been demonstrated is not true.

II. None of the cited references, whether taken alone or in combination suggest the combination of these two ingredients as a suitable and effective means for treating Hepatitis C.

The Examiner has failed to show a reference that teaches thymosin-α to treat Hepatitis C. That is because no one before the filing of this application used thymosin-α to treat Hepatitis C. The Examiner has also failed to show a reference that suggests that the Hepatitis C virus would be affected by thymosin-α or that an immune system in a patient struggling with Hepatitis C infection could be improved by using thymosin-α. The Examiner has also failed to show that a combination therapy of α-interferon and thymosin-α would have the desired results in alleviating the Hepatitis C virus.

Rather, the Examiner has maintained that since α-interferon and thymosin-α have been used to treat Hepatitis B, it would have been obvious to use them together to treat Hepatitis C. The Examiner also maintains that the immunopotentiating effects of α-interferon in combination with thymosin α have been known to the artisan at the time of the invention.

Let's explore the Examiner's position carefully.

First, to make a prima facia case for combining references, the references must have some suggestion or teaching to make the combination. The Examiner can not use

mere hindsight. Here, none of the references make the suggestion for using the claimed ingredients to treat Hep. C or any other virus.

Second, with reference to the Examiner position that the immunopotentiating effects of α-interferon in combination with thymosin α have been known to the artisan at the time of the invention. We agree that it was known that α-interferon and thymosin had immunopotentiating effects that were effective in the treatment of Hep B. However, it was not known that they would have the same effect with Hep C. Testing would have had to be performed to make that assumption. If the two ingredients were known at the time of the invention to have immunopotentiating effects for viruses other than Hepatitis B, than why did not every doctor and scientists in the world use the two ingredients together to treat every virus or at least every virus that attacked the liver? The viruses that cause the mumps, measles, herpes and infectious mononucleosis also attach the liver and the combination therapy was not suggested for these viruses prior to the present invention. It would have been simply too large of a leap in science to assume at the time of the invention, based on the cited references that just because two ingredients work for one virus (Hep B), they would have worked in the human body against every other virus in the same way.

As previously stated, a scientist experienced with Hepatitis B and Hepatitis C knows that Hepatitis C is caused by an RNA virus and Hepatitis B is caused by a DNA virus (emphasis added). These two types of viruses operate differently in a host. For Hepatitis C, the injury is caused by the virus itself. For Hepatitis B, the injury is caused by the immunologic response to the virus. Further, as previously stated, there are other differences between the two diseases as well. About 30% of persons with Hepatitis B show no symptoms. About 80% of persons with Hepatitis C show no symptoms. Hepatitis C is less likely than the other hepatitis viruses to cause serious illness at first (only one-quarter of the people infected actually develop symptoms). There is a vaccine for preventing Hepatitis B that is available for all age groups that prevents hepatitis B virus infection (available sine 1982). There is no vaccine for preventing hepatitis C. No generalized assumption would have been made by one of ordinary skill in the art that a vaccine that works for one type of Hepatitis would work for the other type and further, no

generalized assumption could have been made at the time of the invention that a therapy that works for Hepatitis B would also work for Hepatitis C.

Discussion of the References: (this discussion is a repeat of the discussion in the last response.

Huang et al. is directed to a composition for treating Hepatitis B rather than Hepatitis C. Huang et al. combines α-interferon and thymosin to treat Hepatitis B. Huange et al. examines antigens and antibodies of HBV and HBcAg, DNAP, HBV-DNA. Huang, et al. is silent about Hepatitis C virus, antigens and antibodies. Huang, et al. is also careful not to speculate that its treatment for Hepatitis B would be useful for any other type of Hepatitis virus, other virus that attacks the liver or other disease forming viruses known to man.

As stated above, in Hepatitis B, the injury is caused by the immunologic response to the virus. Hepatitis C virus does not hurt the liver by the immunologic response to the virus. In Hepatitis C, the virus itself attacks the liver. Given the different modes of operation of the two types of viruses, it cannot be stated based on Huang, et al. that a therapy for one would be effective against the other.

The present composition claims require "an anti-Hepatitis C viral effective amount of at least one α-interferon, said pharmaceutical dosage unit being capable of promoting *in vivo* inactivation of hepatitis C virus." The present method claims call for treating Hepatitis C by administering to a mammal an anti-hepatitis C viral effective amount of at least one α-interferon, concurrently or sequentially with administering a thymosin or thymosin fragment. Huang et al. does not indicate that thymosin is useful for treating Hepatitis C and, therefore, does not lead the artisan to the claims of the invention or any other RNA virus like Hepatitis C.

Therefore, the composition of Huang, et al. does not render obvious the present claims, especially when there is no motivation to use the claimed ingredients together to treat Hepatitis C.

Hoofnagle, et al. does not make up for the deficiencies of Huang, et al. Hoofnagle et al. discloses a composition containing only α-interferon for treating Hepatitis C. There is no mention of the use of thymosin for treating Hepatitis C or the

combination of α-interferon with thymosin for treating Hepatitis C. There is no disclosure that a treatment for Hepatitis B would work for Hepatitis C or vise versa. There is no disclosure that Hepatitis C and Hepatitis B are similar viruses. There is also no suggestion of what the proper dosage unit of thymosin would be or what parameters would be useful to achieve the proper dosage unit of thymosin for the combination therapy of the claims. Although, Hoofnagle, et al. briefly discusses using *other antiviral agents or corticosteroids* in treating Hepatitis C in patients with suspected Hepatitis C who have not responded to alpha interferon, Hoofnagle, et al. does not suggest using immune system potentiating agents for treating Hepatitis C (page 261, col 2, last paragraph). Without any motivation present in, Hoofnagle et al. to use an immune system potentiating agent such as thymosin, Hoofnagle, et al. would not have lead the skilled artisan to the present invention.

Moody is directed to compositions and methods for treating small cell and nonsmall cell lung cancers, not viruses, not Hepatitis C virus. Moody indicates that thymosin and interferon operates to treat the endogenous biochemical factors that regulate the growth of lung cancer cells. Moody has been cited to show that thymosin fragments have been identified to have "therapeutic significance." "Therapeutic significance" does not establish a prima fascia case of obviousness in the present application's claims.

There must be some motivation for (1) the use of thymosin with interferon and (2) this combination of thymosin with interferon for the treatment of Hepatitis C virus for Moody to be successfully combined with the other references. In this case, there is not. Not only is there no combined therapy in Moody for treating Hepatitis C virus, there is no use of a combined therapy for the treatment of any other viral entity.

Therefore, Moody does not add to the disclosures of the above two references in such a way that would have motivated one of ordinary skill in the art to try thymosin with α-interferon to treat an RNA virus like Hepatitis C.

Applicant states that a doctor of ordinary skill in the art would not have automatically combined therapies of antiviral agents and immune potentiating agents for a particular disease without a great deal of experimentation because of the fear of side effects or the canceling of effectiveness or otherwise. It is respectfully submitted that the

combination of Huang, et al., Hoofnagle, et al. and Moody would not have motivated one of ordinary skill in the art at the time of the invention to arrive at the present claims under 35 USC §103(a). Unexpected results have been shown by the Applicant and therefore, this rejection should be withdrawn.

Reconsideration and allowance are respectfully requested.

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Respectfully submitted,

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